



# Gold King Mine Release: Utah's Response and Implications for Our Waters

Water Development Commission  
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UTAH DEPARTMENT of  
**ENVIRONMENTAL  
QUALITY**

# Bonita Peak Mining District



Figure 7.—Photograph showing the seepage outflow from the drain pipe at the American Tunnel at Gladstone, Colorado, as it appeared on September 3, 2015, with about 100 gpm of acid water flowing out.



Figure 12.—Photograph taken on September 15, 2015, of drainage from the Silver Ledge Mine, which is located south of the Gold King Mine.



Figure 11.—Photograph showing acid drainage flowing out of the Red and Bonita Mine on September 3, 2015.

- ❑ 48 historic mines near Silverton, CO releasing 5.4 millions gallons per day
- ❑ Recently listed on the Superfund National Priorities List
- ❑ Public comments accepted through June 6, 2016

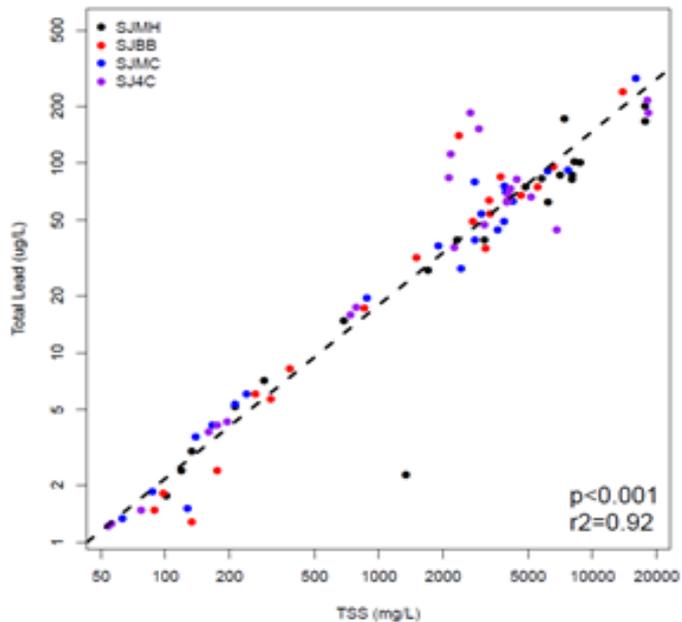
# Spring Runoff Monitoring

- ❑ DEQ monitored San Juan River weekly during Spring Runoff
- ❑ No samples exceeded water quality standards
- ❑ DEQ will be working to determine the total load of metals that moved through Utah during Spring Runoff



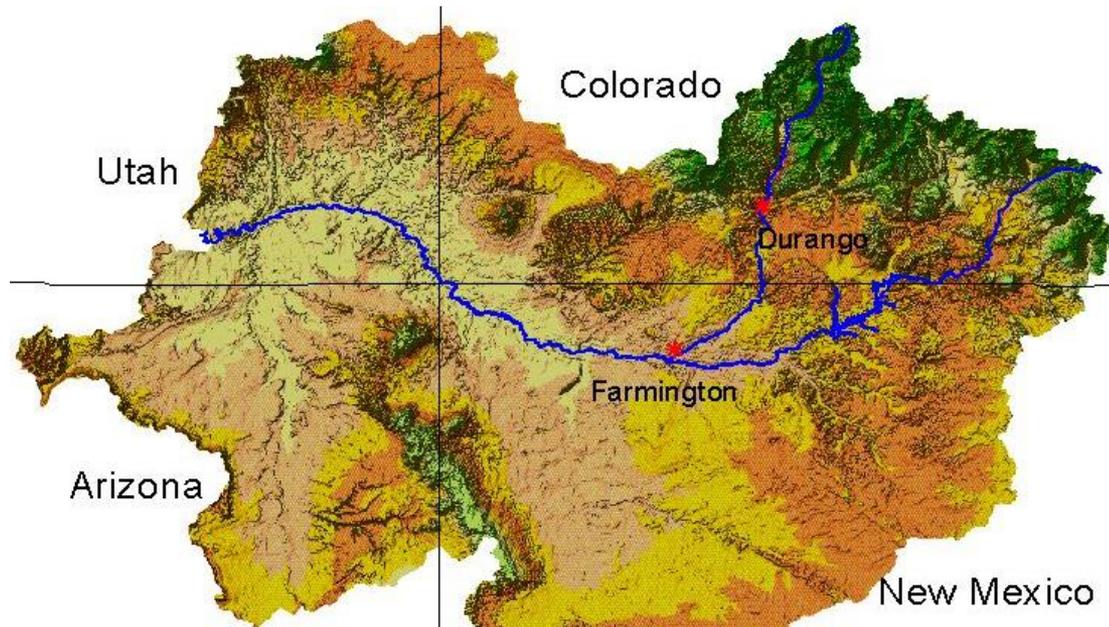
# Real-time Water Quality Information

- ❑ USGS deployed sondes in April to measure real time water quality
- ❑ Work over the winter will aim to relate metals concentrations to real-time parameters



# Utah's Long-term Plan Study Objectives

- ❑ Determine if metals pose a risk to the San Juan River or Lake Powell
- ❑ Provide timely information upon which to evaluate risk
- ❑ Understand trends in metal loading to Lake Powell
- ❑ Determine the relative importance of Bonita Peak Mining District sources



# Long-term Work Plan Elements

## Water Quality Monitoring to Inform Public and Protect Uses of San Juan River

- Task 1: Surface Water Quality Monitoring – limited to Spring
- Task 2: Real-time Reporting of Water Quality Conditions

## Drinking Water Quality Monitoring

- Task 3: Public Drinking Water Systems Monitoring
- Task 4: Private Well Monitoring

## Metals Load Analysis and Source Characterization

- Task 5: Total Metals Load Analysis
- Task 6: Inventory of Sources in the San Juan River Watershed

## Accumulation of Metals in San Juan River and Lake Powell

- Task 7: Sediment sampling in San Juan River and Tributaries
- Task 8: Sediment Traps in Lake Powell
- Task 9: Sediment Core Study in Lake Powell

## Assessing Impacts on Human Health and Aquatic Life Uses

- Task 10: Ecological Risk Assessment
- Task 11: Human Health Risk Assessment

## Coordination and Outreach

- Task 12: Inter-agency Partnership and Collaboration
- Task 13: Public Information and Stakeholder Outreach

<b>Long-term Monitoring Plan Total Costs</b>	<b>\$1.2 million</b>
EPA Funding for Utah Long-term Plan	\$465,000
EPA Funding for Utah's Spring Runoff activities	~\$180,000
UDEQ lab allocation and staff contributions	\$250,000
Match from other agencies	\$120,000 (tentative)



# Drinking water systems

- ❑ **Public Systems**
  - ❑ Mexican Hat, Bluff, Sand Island
  - ❑ Sample public drinking water systems for metals during peak spring runoff
  - ❑ Sampling at wells prior to treatment and finished water
  - ❑ Division of Drinking Water (UDEQ) will coordinate with facilities
- ❑ **Private Systems**
  - ❑ Up to 7 private wells sampled with preference to wells that are influenced by river
  - ❑ Division of Drinking Water (UDEQ) will coordinate with San Juan County



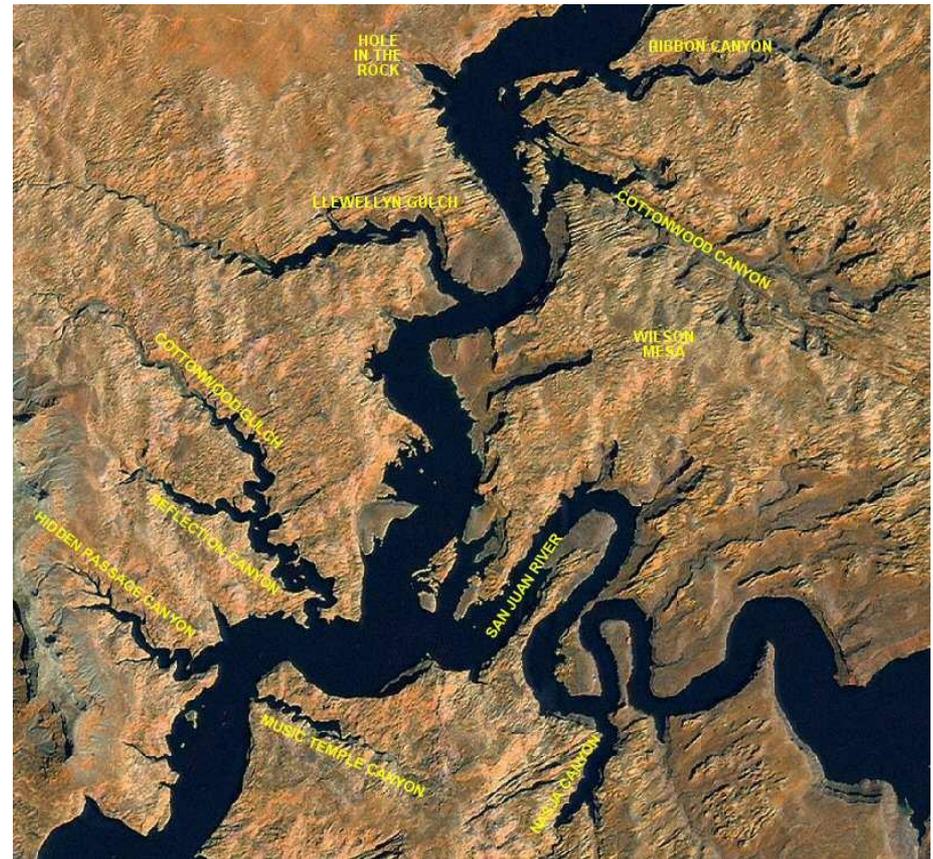
# Long-term effects on Lake Powell

## San Juan Arm, Lake Powell

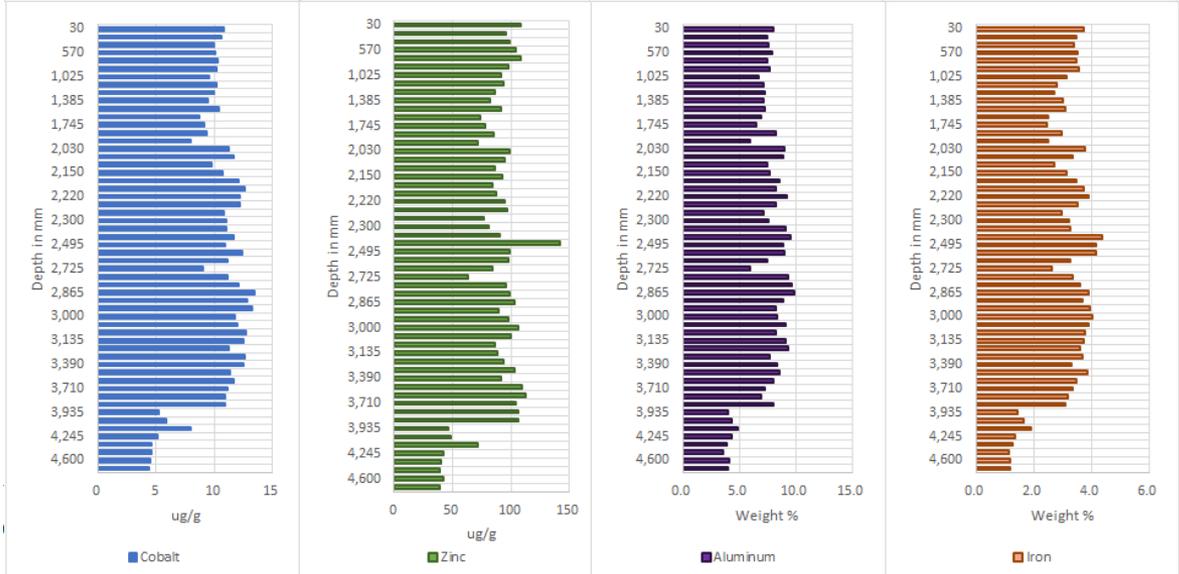
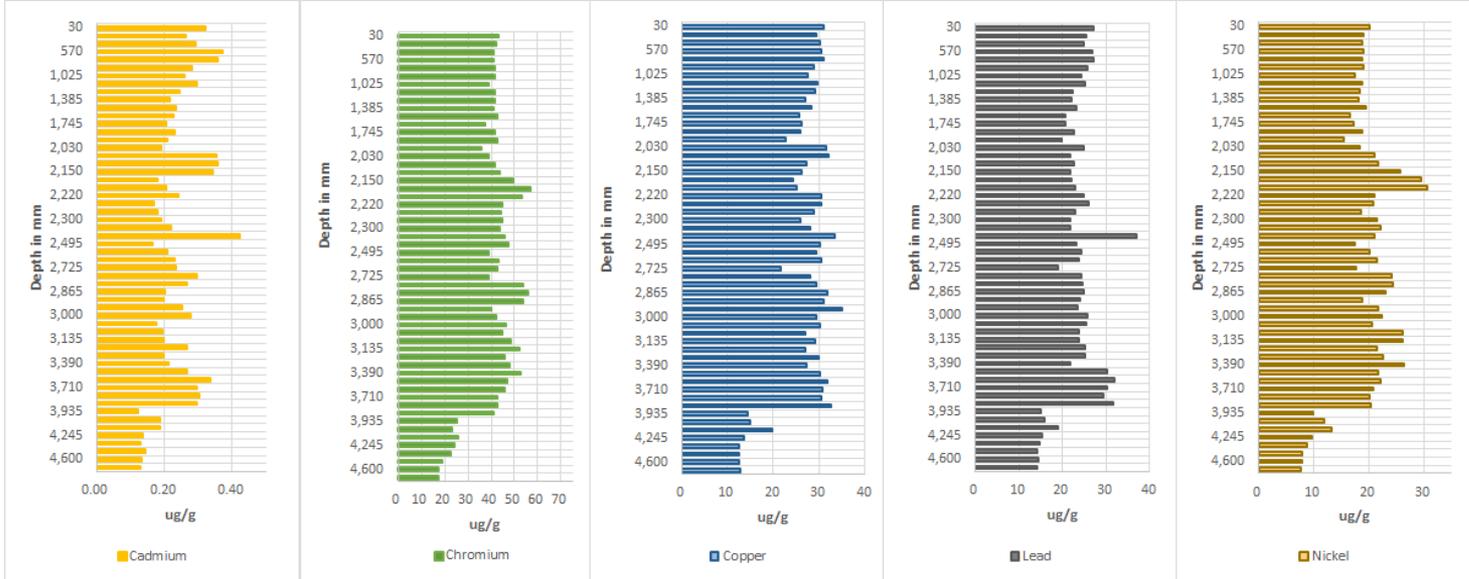
- Depositional area for historic and current mine releases in San Juan River system

## Historic releases:

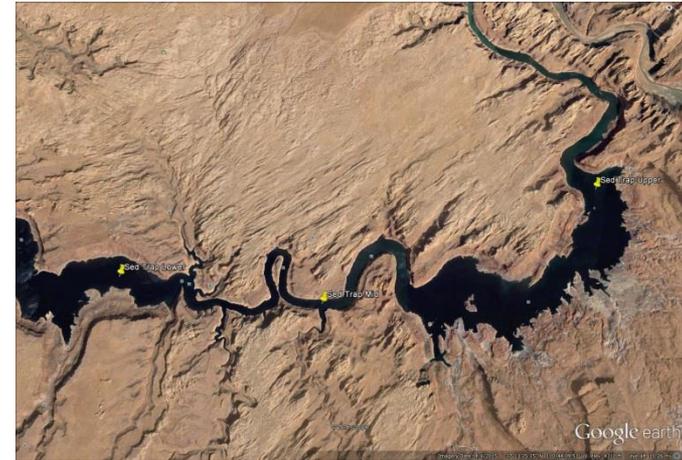
- Estimated release of 8.6 million tons of tailings discharged to river system over life of the mines
- EPA estimates 5.4 million gallons per day of releases
- 1978 - 500 million gallon release



# Lake Powell - San River Arm Core 3



# Sediment transport

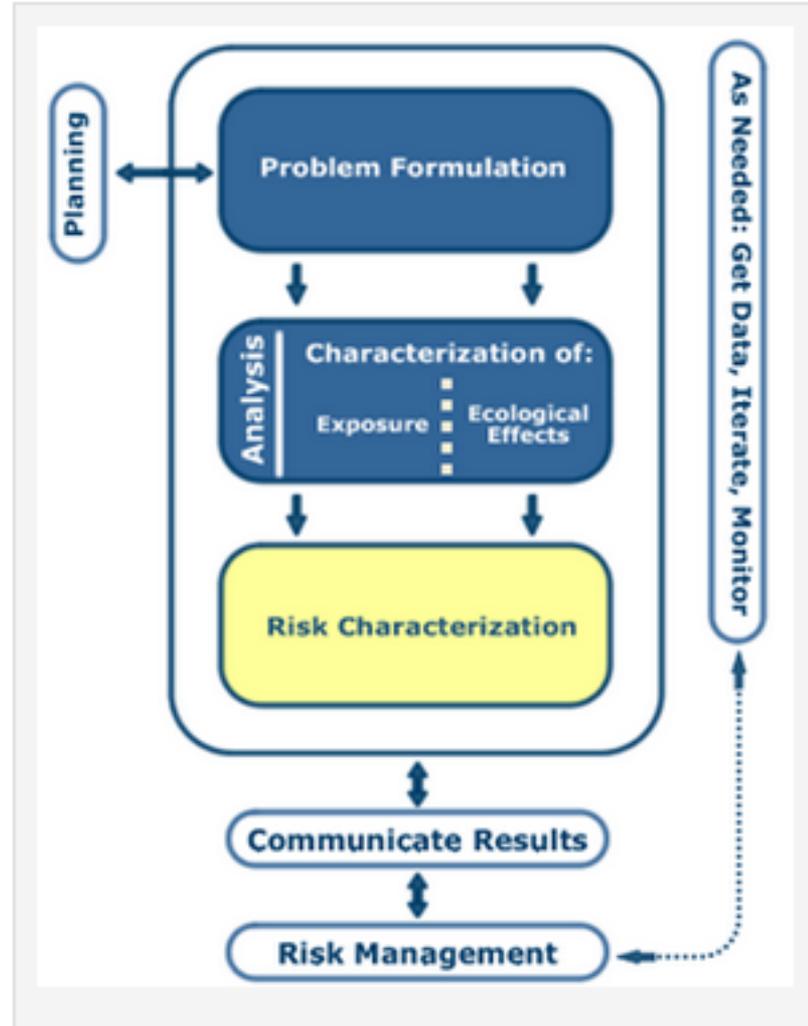


- ❑ Sediment monitoring in Lake Powell (USGS)

# Ecological and Human Health Risk Assessment

Assess the potential for adverse effects to invertebrates, fish, birds and mammals from exposure via food items using pollutant concentrations measured in invertebrates and water.

Assess the potential human health risk presented by use of the San Juan River for culinary water, recreation, or agricultural activities using water and sediment data.



# More Information

## deq.utah.gov/Topics/Water/goldkingmine/



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## Gold King Mine Release

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### Updates

#### Update April 12, 2016

DEQ continues to collect weekly water quality samples in the San Juan River. Thus far, none of the samples collected during spring runoff show exceedances of any screening values for recreational uses, aquatic life, agricultural uses, or drinking water. DEQ will notify the public on this website should any samples exceed any screening values. Otherwise, DEQ will be posting raw and summary data bi-weekly beginning in mid-April.

#### Update March 21, 2016

DEQ has drafted a Long Term Monitoring and Assessment Plan for the San Juan River and Lake Powell in response to the August 5, 2015 Gold King Mine Spill that occurred in the upper watershed. The Plan consists of 13 tasks that are designed to assess the potential risks to human health, recreation, aquatic life and agriculture.

#### Update March 4, 2016

The Water Quality Board authorized \$200,000 of hardship grant funds to monitor the San Juan River during spring runoff event. There are concerns of a second wave of metal pollution originating from the Gold King Mine release that could be remobilized when the spring melt increases stream flows. The Division of Water Quality is developing a long-term monitoring plan to include:

- monitoring during high flow events;
- placement of instrumentation to provide for continuous monitoring of turbidity; and
- evaluation of the legacy effects of metals released from mines in the San Juan River watershed on Utah's waters, including Lake Powell sediments.

#### Update February 10, 2016

DEQ continues to evaluate the effects of the August 5th release from the Gold King Mine on Utah's waters. As reported, data indicate

